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Dictionary:

ferromagnetic

(fĕr'ō-măg-nĕt'ĭk)

adj.

Of or characteristic of substances such as iron, nickel, or cobalt and various alloys that exhibit extremely high magnetic permeability, a characteristic saturation point, and magnetic hysteresis.

ferromagnetism fer'ro·mag'ne·tism (-măg'nĭ-tĭz'əm) *n.*

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Sci-Tech Encyclopedia: Ferromagnetism

A property exhibited by certain metals, alloys, and compounds of the transition (iron group), rare-earth, a actinide elements in which, below a certain temperature called the Curie temperature, the atomic magneti moments tend to line up in a common direction. Ferromagnetism is characterized by the strong attraction one magnetized body for another.

Atomic magnetic moments arise when the electrons of an atom possess a net magnetic moment as a resul of their angular momentum. The combined effect of the atomic magnetic moments can give rise to a relatively large magnetization, or magnetic moment per unit volume, for a given applied field. Above the Curie temperature, a ferromagnetic substance behaves as if it were paramagnetic: Its susceptibility approaches the Curie-Weiss law. The Curie temperature marks a transition between order and disorder of the alignment of the atomic magnetic moments. Some materials having atoms with unequal moments exhibit a special form of ferromagnetism below the Curie temperature called ferrimagnetism. *See also* Cu temperature; Curie-Weiss law; Electron spin; Ferrimagnetism; Magnetic susceptibility; Paramagnetism.

The characteristic property of a ferromagnet is that, below the Curie temperature, it can possess a spontaneous magnetization in the absence of an applied magnetic field. Upon application of a weak

magnetic field, the magnetization increases rapidly to a high value called the saturation magnetization